FLWEMS Paramedic Medication Information For:
ACTIVATED CHARCOAL

Antidose-Aqua, CharcoAid
CharcoAid 2000, Liqui-Char

Description
Activated charcoal is an insoluble, black, odorless and tasteless powder. It is prepared by the pyrolysis of various organic materials. The carbon so produced is then washed with acid to remove impurities and then "activated" by superheating in steam or air at (600 - 900°C). This process creates a highly developed internal pore structure within the carbon particles, increases the surface to 1000 - 3500 m2/g and multiplies the adsorptive capacity by a factor of 2 to 3.

Activated charcoal exerts its beneficial effects by:

- adsorbing toxins within the gut lumen and, for certain toxins and metabolites, interrupting enterohepatic circulation
- "gastrointestinal dialysis" of certain toxins which continuously diffuse from the blood into the gut lumen when multiple-dose activated charcoal is administered .
- These properties can result in reduced absorption and/or enhanced elimination of a toxin. However, most data supporting the use of activated charcoal come from volunteer studies and the utility of administering activated charcoal in human poisoning is as yet unproven. Some authors maintain that it is not useful if administered more than an hour after ingestion.

Indications
There are no absolute indications. The decision to administer activated charcoal should be based on the following considerations:

- time elapsed since ingestion
- potential toxicity of the toxin(s)
- formulation of the toxin(s)
- patient's clinical status

In all cases, any life-threatening organ failure should be attended to before activated charcoal is given. Early institution of appropriate supportive care measures always takes precedence over the administration of activated charcoal.

Contra-indications
- Ingestion of corrosive substances (activated charcoal is ineffective and may obscure the endoscopic visualization of the GI tract)
- Poisoning with toxins that cause vomiting (risk of pulmonary aspiration)
- Poisoning with toxins where a specific antidote may be given by mouth; activated charcoal may adsorb the antidote (e.g. N-acetyl cysteine in paracetamol poisoning)

Not all toxins are adsorbed by activated charcoal; toxins that do not bind well include: cyanide, alcohols, glycols, metals (iron, lithium).

Dosage and Administration
Activated charcoal is given as a slurry in water (50 g in 250 ml). The patient should drink it slowly in order to minimize vomiting.

Activated charcoal should be administered as soon as possible after ingestion of the toxic substance. The recommended dose is 50 g in adults, 1 g/kg in children. Single-dose activated charcoal may be the only treatment required in mild to moderate poisoning. Repeat dose activated charcoal may be given every 4 to 6 hours for 24 to 48 hours (25 g in adults, 0.5 g/kg in children) in the following cases:
- Large doses of toxins, prolonged coma (phenobarbitone)
- Toxins which may decrease intestinal motility, especially anticholinergic agents (tricyclic antidepressants)

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- Toxins with high blood concentration, small volume of distribution and slow spontaneous elimination
- Multiple-dose activated charcoal may also minimize subsequent release of toxins from the charcoal-toxin complex (desorption).

Monitoring
Activated charcoal should not be given too quickly in order to minimize the occurrence of vomiting. Following administration, intestinal motility (diarrhea or constipation) should be monitored. Activated charcoal may color the feces black.

Adverse Effects

- Nausea and vomiting (as a result of rapid administration), risk of pulmonary aspiration
- Constipation with risk of gastrointestinal obstruction and/or partial release of adsorbed toxins, diarrhea.

END OF INFORMATION – NOTHING FOLLOWS